

**McLeod Institute of Simulation Sciences,
California State University, Chico**

Annual Report, July 2004

Retirement of Dr. Ralph Huntsinger, Director Emeritus.

The McLeod Institute of Simulation Sciences at California State University, Chico wishes a long and happy retirement to its Founder and the Founder of the entire MISS network, Dr. Ralph C. Huntsinger, Director Emeritus and SCS Historian. Ralph entered the CSU, Chico Faculty Early Retirement Program under which he continued to teach at Chico on a part-time basis. From this summer, Ralph is fully retired although he is expected to continue to play an active part in MISS and SCS activities.

It was in the 1970's that Ralph first conceived the idea of a McLeod Institute at CSU, Chico, but a succession of budget cuts forced the shelving of the idea for almost a decade. Ralph is, however, nothing if not persistent, and his dream finally became a reality in the 1980s. The MISS concept proved to be very attractive to many other universities and Ralph's enthusiasm for promoting new centers around the world led to the creation of the MISS Network we know today. Ralph served as International Director and was formally recognized as the Founder of MISS by SCS. He also served as Director of the Chico center in its early years and now has the title of Director Emeritus.

We in Chico are sure that his many friends at MISS centers around the world will join with us in wishing Ralph and Mary the best of health and happiness in the future.

The USE-ME Project

The US-Europe student mobility project funded by the US Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE) has received a one-year extension. The project has involved collaboration between three US and three European Universities in developing graduate programs in Modeling and Simulation. CSU, Chico is the lead US site along with the University of Nebraska, Lincoln and Old Dominion University in Virginia. The University of Hamburg is the lead European campus teamed with the University of Glasgow and the Technical University of Vienna. Ralph Hilzer (Chico), Dietmar Moeller (Hamburg) Hamid Vakilzadian (Nebraska), Bowen Loftin (Old Dominion), David Murray-Smith (Glasgow) and Felix Breitenecker (Vienna) are the Project Directors. Bowen took over from Ralph Rogers when Ralph left Old Dominion to take up a new position.

Successes for the project have included several transatlantic faculty and student exchanges, presentations at EC-US Project Directors conferences, the development of joint simulation-based student projects, and the publication of a text-book, written by Dietmar Moeller.

New EC-US Complementary Activity

Following on the success of the USE-ME project Chico and Hamburg collaborated in the development of a further proposal to FIPSE and the EC that is aimed at developing an Internet-based infrastructure for collaborative international student team projects. At the time of writing of this report, the proposal is on a short list for funding but confirmation of funding has not been received. In this case the US partners are the University of Nebraska at Lincoln, and the University of Alabama at Huntsville. The European partners are the University of Glasgow, the University of Aarhus and the University of Budapest.

High-Speed Real-Time Simulation

US Office of Naval Research funding for work on the high-speed real-time simulation of power electronic systems has been renewed through September 2007. The work involves the use of arrays of digital signal processors to produce hardware-in-the-loop real-time simulations with frame times of less than 10 μ S. The simulated systems consist of 3-phase converters (rectifier/inverters), connected to a.c. and d.c. systems including harmonic filters and pulse-width modulation controllers. Typical models involve 15 to 40 differential equations and a large amount of switching logic. Several papers have been presented at simulation and engineering design conferences, including one at the SCSC 2004 in San Jose. The research group consists of Professors Roy Crosbie, John Zenor, Dale Word, Richard Bednar and Ralph Hilzer supported by a team of 6 senior undergraduate and graduate students. Dr. Nari Hingorani, consultant, a world renowned expert in power electronics is also a member of the team.

Two of the students employed on this project were selected for internships at NASA's Jet Propulsion Laboratory in Pasadena, California this summer.

MS Degree in Simulation Sciences

The Master of Science degree in Simulation Sciences continues to be offered as part of the CSU, Chico Interdisciplinary Studies graduate program. Student numbers fluctuate but it has proved possible to continue to offer advanced courses on topics in Modeling and Simulation. Chuck Weisenseel, a laboratory manager from Edwards Air Force Base and a 1984 Chico Mechanical Engineering alumnus, graduated from the program this summer after entering the program in Summer 1983 on leave from Edwards. Congratulations to Chuck

Support for SCS Activities

Members of the Chico center have continued to support SCS activities. Roy Crosbie presented a paper and was a panel member at the ICSEE 2003 conference in San Diego and has collaborated with Bill Waite and Bruce Fairchild in developing Education-based sessions at SCSC 2004. Roy is also co-chair of a session on simulation applied to marine engineering at the Huntsville Simulation Conference to be held in October 2004

Other Activities

Roy Crosbie has co-organized a Workshop at Glasgow University on the Virtual Test Bed, a simulation environment developed at the University of South Carolina with Office of Naval Research support. The Workshop, which is co-sponsored by UKSIM, will be held on September 3, 2004 before the Advanced Engineering Design conference to be held at Glasgow University from September 6 through 9. Roy has also organized a session on Simulation Applications to Engineering Design at this conference.